



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/897,111	07/03/2001	Yoshihisa Inoue	1155-0221P	9238
2292	7590	02/18/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			LU, C CAIXIA	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	
			1713	

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/897,111

Applicant(s)

INOUE ET AL.

Examiner

Caixia Lu

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-14 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 9-14 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-8 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US 6,506,861).

The instant claims are directed to a process for preparation of a polar olefin copolymer comprising copolymerizing a non-polar olefin and a polar olefin in the presence of a transition metal catalyst of formula L_mMX_n wherein m is an integer of 2-6 and a cocatalyst, wherein the difference between the coordination energies of ethylene and methyl acrylate (ΔE) is 50 kJ/mol or less.

Wang claims a polymerization process in the presence of a transition complexes (IV) or (VI), wherein the monomer includes one or more of olefin or polar olefin (col. 38, claim 7). Wang further demonstrated the copolymerization of ethylene and hexyl acrylate in Examples 12, 13 and 28 (col. 24, Tables 4 and 5, and col. 26). Therefore, it would have been obvious to a skilled artisan at the time the invention was made to employ Wang's teaching to conduct the ethylene and acrylate copolymerization in the presence of transition complexes (IV) or (VI) because such is within the scope of Wang's claims and all of the embodiments of Wang's claims are expected to work and in the absence of any showing of criticality and unexpected results.

It is noted that Wang does not expressly teach the coordination energies between the catalyst and ethylene or methyl acrylate. Based on the fact that the

Art Unit: 1713

percentages of the acrylate comonomers in the ethylene-acrylate copolymers are in the same range as those of applicants' working examples, a skilled artisan would have expected Wang's catalyst to inherently have a ΔE which satisfies the ΔE limitation of the instant claims because the ΔE limitation of the instant claims is the measurement of the tendency of the copolymerization between the non-polar olefin and polar olefin. Once a product appearing to be substantially identical is found and a 35 USC 102/103 rejection made, the burden of proof is shifted to the applicant to show an unobvious difference. In re Fitzgerald, 205 USPQ 594. In re Fessmann, 180 USPQ 324. Applicants have not met their burden to demonstrate an unobvious difference between the claimed product and the products of the prior art examples.

3. Claims 4 is rejected under 35 U.S.C. 103(a) as obvious over Bansleben et al. (US 6,410,664) and Bansleben et al. (US 6,197,715) independently for the same rationale as shown in previous Office action as the following.

The instant claims are directed to a process for preparation of a polar olefin copolymer comprising copolymerizing a non-polar olefin and a polar olefin in the presence of (A-i) a reaction product of a transition metal compound of $M'X_k$ of Group 4-6 and 11 and a ligand compound of formula (I) and (B) a cocatalyst.

Art Unit: 1713

US 6,410,664 teaches copolymerization of ethylene and functionalized cyclic olefins in the presence of a nickel(II) salicylaldimine complex prepared by reacting a nickel(II) compound and a salicylaldimine ligand (col. 30, lines 24-53 and Table 8).

It is noted that the transition metal the working examples of US 6,410,664 is Ni rather than a metal from Groups 4-6 and 11; however, the transition metals of Group 4 such as Zr, Ti and Hf and Group 6 are expressly taught in col. 4, lines 46-50.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ the teaching of 6,410,664 to conduct copolymerization between polar and non-polar olefins in the presence of Group 4 or 6 transition metal containing catalyst since such is taught in the reference and expected to work and in the absence of showing criticality and unexpected result.

Similar rejection can be made over US 6,197,715 (col. 9, line 5 and Example 11 of col. 34).

Response to Arguments

4. Applicant's arguments filed January 21, 2005 with respect to claims 1 and 2 have been considered but are moot in view of the new ground(s) of rejection. Furthermore, applicants' arguments are not relevant to unamended claim 4 because the reaction product of the transition metal compound of $M'X_k$ of Group 4-6 and 11 and the ligand compound of formula (I) does not exclude the number, "m", of the ligand in the reaction product to be 1. It is also noted that applicants

Art Unit: 1713

is mistaking the "n" of '664 patent with the "m" of the instant claim 1. The rejections is still deemed proper and, thus, maintained.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**


See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.


Caixia Lu, Ph. D.
Primary Examiner
February 16, 2005